

Geometry Final Review Quarter 2

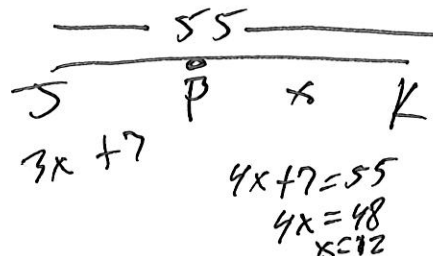
Multiple Choice

Identify the choice that best completes the statement or answers the question.

- A ① P is between J and K . The distance between J and P is 7 more than 3 times the distance between P and K . If $JK = 55$, what is PK ?

(a) 12
(b) 16

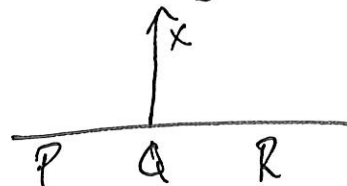
(c) 24
(d) 29



- C ② QX bisects $\angle PQR$. What is the greatest possible whole-number measure of $\angle PQX$?

(a) 45°
(b) 89°

(c) 90°
(d) 100°



- C ③ The ratio of the measures of two supplementary angles is 8 : 4. What is the measure of the smaller angle?

(a) 12°
(b) 40°

(c) 60°
(d) 80°

Handwritten work for Question 3:
~~Angle 1 = x~~
~~Angle 2 = x~~
 $\text{Angle 1} = 8x$
 $\text{Angle 2} = 4x$
 $8x + 4x = 180$
 $12x = 180$
 $x = 15$
 $\text{Angle 2} = 4x = 4(15) = 60^\circ$

- C ④ To the nearest tenth, what is the distance between the points $(10, -11)$ and $(-1, -5)$?

(a) 2.6
(b) 4.1

(c) 12.5
(d) 18.4

Handwritten work for Question 4:
 $d = \sqrt{(-1-10)^2 + (-5-(-11))^2}$
 $d = \sqrt{(-11)^2 + (6)^2}$
 $d = \sqrt{121 + 36}$
 $d = \sqrt{157}$

- D ⑤ Which is next in the sequence?

-1, 2, 7, 14, 23, ...
 (a) 32
 (b) 25

(c) 32
(d) 34

B

- ⑥ Which is the contrapositive of the statement?

If $6 - 3x \leq 7$, then $3x \geq -1$.

Ⓐ If $6 - 3x > 7$, then $3x > -1$.

Ⓑ If $3x < -1$, then $6 - 3x > 7$.

Ⓒ If $6 - 3x \leq -7$, then $3x \geq 1$.

Ⓓ If $3x \geq 1$, then $6 - 3x \leq -7$.

Negation & reverse

A

- ⑦ Which conjecture is valid by the Law of Syllogism?

Given: If it is June 12, then the local orchestra will play a concert. If the local orchestra is playing a concert in June, then the day must be Tuesday.

Ⓐ If it is June 12, then the day must be Tuesday.

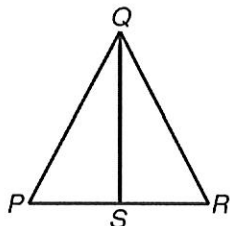
Ⓑ If the local orchestra is playing a concert, then it must be June 12.

Ⓒ If the local orchestra is playing a concert, then it must be a Tuesday in June

Ⓓ If it is a Tuesday in June, then the local orchestra is playing a concert.

C

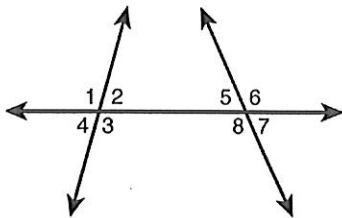
- ⑧ In the figure, why is $\overline{QS} \cong \overline{QS}$?



- Ⓐ All altitudes are congruent.
Ⓑ Symmetric Property of Congruence
Ⓒ Reflexive Property of Congruence
Ⓓ Transitive Property of Congruence

D

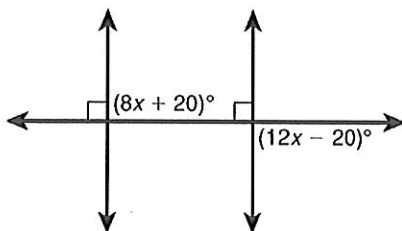
- ⑨ Which names a pair of corresponding angles?



- (a) $\angle 1$ and $\angle 6$
 (b) $\angle 3$ and $\angle 8$
 (c) $\angle 2$ and $\angle 7$
 (d) $\angle 3$ and $\angle 7$

C

- ⑩ What is the value of $12x - 20$?



- (a) 34
 (b) 88
 (c) 90
 (d) 100

B

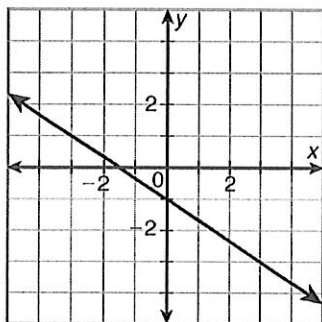
- ⑪ What is the slope of the line that passes through the points $(-1, 9)$ and $(4, 6)$?

- (a) $-\frac{5}{3}$
 (b) $-\frac{3}{5}$

- (c) $\frac{1}{5}$ $\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 9}{4 - (-1)} = \frac{-3}{5}$
 (d) 5

D

- 12 Which is the equation of the line in the graph?



- (a) $y = -2x - 3$ (c) $y = -3x - 1$
 (b) $y = -\frac{3}{2}x - 3$ (d) $y = -\frac{2}{3}x - 1$

C

- 13 Two of the three angle measures in a triangle are given. Which are angle measures of an acute triangle?

- (a) $11^\circ, 79^\circ$ (c) $11^\circ, 89^\circ \rightarrow 80^\circ$
 (b) $11^\circ, 59^\circ$ (d) $11^\circ, 29^\circ$

D

- 14 Which polygon has line symmetry but not rotational symmetry?

- (a) rectangle (c) rhombus
 (b) square (d) kite

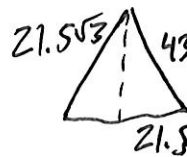
A

- 15 Which are the lengths of the sides of an obtuse triangle?

- (a) 8, 11, 15 (c) 11, 11, 15
 (b) 9, 12, 15 (d) 10, 12, 15

$$\begin{aligned}
 &15^2 > 8^2 + 11^2 \\
 &225 > 64 + 121 \\
 &225 > 185
 \end{aligned}$$

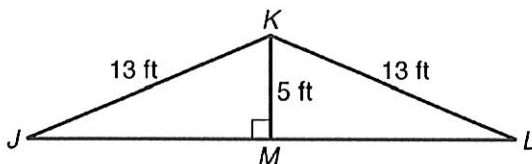
- C 16 To the nearest tenth, what is the altitude of an equilateral triangle whose sides measure 43 centimeters?
- (a) 21.5 cm (c) 37.2 cm
(b) 24.8 cm (d) 74.5 cm



- B 17 What is the measure of one exterior angle of a regular polygon having 40 sides?
- (a) 4.5° (c) 85.5°
(b) 9° (d) 171°

$$\frac{360}{40} =$$

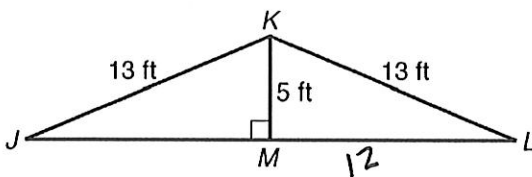
- D 18 The figure represents the wooden truss used to support the roof of a garage.



What postulate or theorem can be used to prove $\triangle JKM \cong \triangle LKM$?

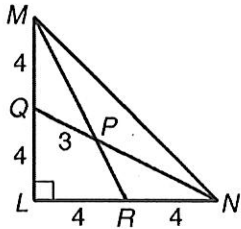
- (a) SSS (c) ASA
(b) SAS (d) HL

- B 19 The figure represents the wooden truss used to support the roof of a garage.



Given that $ML = 12$ feet, how wide is the garage?

- (a) 12 ft (c) 25 ft
(b) 24 ft (d) 26 ft

C②0 What is MP ?

$$MR^2 = 8^2 + 4^2$$

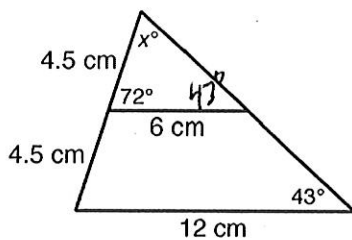
$$\sqrt{MR^2} = \sqrt{80}$$

$$MR = 4\sqrt{5}$$

$$MP = \frac{2}{3} 4\sqrt{5} =$$

- Ⓐ $3\sqrt{2}$
 Ⓑ $4\sqrt{2}$

- Ⓒ 6
 Ⓓ 8

C②1 What is the value of x ?

- Ⓐ 25
 Ⓑ 29

- Ⓒ 65
 Ⓓ 115

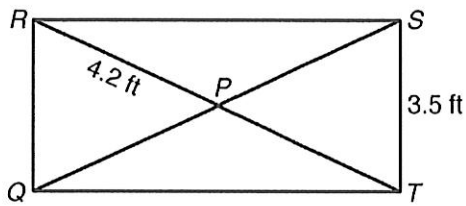
A

②2 Which CANNOT be used to prove that a quadrilateral is a parallelogram?

- Ⓐ One pair of opposite angles is congruent.
 Ⓑ Both pairs of opposite sides are parallel.
 Ⓒ Both pairs of opposite sides are congruent.
 Ⓓ One pair of opposite sides is both parallel and congruent.

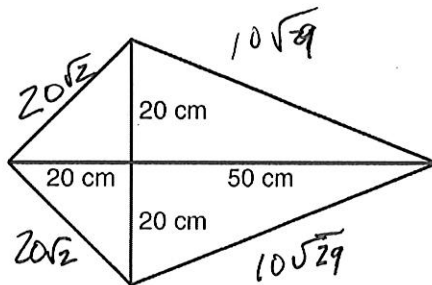
D

- (23) The figure represents a rectangular gate with diagonal braces. To the nearest tenth, what is the width, QT , of the gate?



$$\begin{aligned} 8.4^2 &= 3.5^2 + QT^2 \\ QT^2 &= 8.4^2 - 3.5^2 \\ QT^2 &= 58.31 \end{aligned}$$

- (a) 3.9 ft (c) 7.0 ft
(b) 4.9 ft (d) 7.6 ft



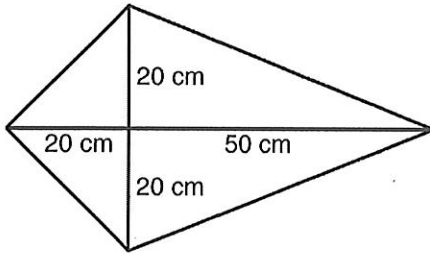
$$\begin{aligned} \cancel{50^2 + 20^2} &= x^2 \\ 50^2 + 20^2 &= x^2 \end{aligned}$$

D

(24)

Kim is making a kite with a wooden frame. The measures of the frame are shown. She will use cloth binding to cover the outer edges of the kite. To the nearest tenth, how many centimeters of binding will she need?

- (a) 58.1 cm (c) 116.2 cm
(b) 82.1 cm (d) 164.3 cm



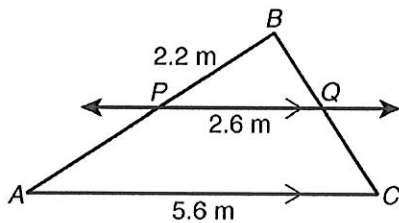
$$\frac{1}{2} (40)(70)$$

C 25

What is the area of the kite?

- (a) 200 cm^2
 (b) 400 cm^2
 (c) 1400 cm^2
 (d) 2800 cm^2

C 26 To the nearest tenth, what is AP ?



$$\frac{AB}{2.2} = \frac{5.6}{2.6}$$

$$AB = 4.74$$

$$AP = 4.74 - 2.2$$

- (a) 1.0 m
 (b) 2.2 m
 (c) 2.5 m
 (d) 4.7 m

C 27 $\triangle TUV$ undergoes the dilation: $(x, y) \rightarrow (2x, 2y)$. Then it is translated: $(x, y) \rightarrow (x - 10, y - 8)$. If vertex T was at $(8, 6)$, what are its coordinates after these two transformations?

- (a) $(16, 12)$
 (b) $(-2, -2)$
 (c) $(6, 4)$
 (d) $(-4, -4)$

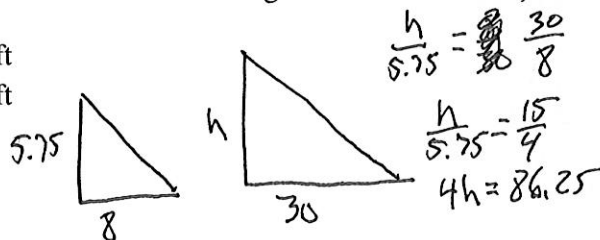
$$(8, 6) \rightarrow (16, 12) \rightarrow (6, 4)$$

B

- 28 Starla is 5 feet 9 inches tall. To find the height of a tree, she measured her shadow and the tree's shadow. Her shadow was 8 feet long when the tree's shadow was 30 feet long. To the nearest foot, how tall is the tree?

(a) 15 ft
(b) 22 ft

(c) 28 ft
(d) 42 ft

C

- 29 \overline{MN} with endpoints $M(9, 3)$ and $N(-1, 5)$ is dilated by a scale factor of 2.5. To the nearest tenth, what is the length of $\overline{M'N'}$?

(a) 16.1
(b) 17.9

(c) 25.5
(d) 28.3

$$\begin{aligned} MN^2 &= (-1-9)^2 + (5-3)^2 \\ MN^2 &= (-10)^2 + (2)^2 \\ MN^2 &= 100 + 4 \\ MN^2 &= 104 \\ MN &= 2\sqrt{26} \\ M'N' &= 2.5 \cdot 2\sqrt{26} \end{aligned}$$

D

- 30 To the nearest thousandth, what is $\tan 77^\circ$?

(a) 0.225
(b) 0.231

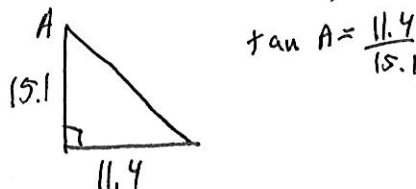
(c) 0.974
(d) 4.331

B

- 31 The legs of a right triangle measure 11.4 meters and 15.1 meters. To the nearest tenth, which could be the measure of the smallest angle?

(a) 31.1°
(b) 37.1°

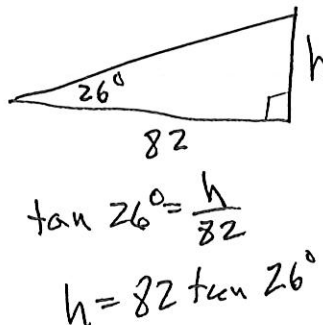
(c) 38.6°
(d) 52.9°

B

- 32 When the angle of elevation to the sun is 26° , a flagpole casts a shadow that is 82 feet long. What is the height of the flagpole to the nearest foot?

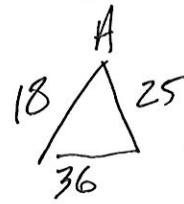
(a) 36 ft
(b) 40 ft

(c) 74 ft
(d) 166 ft



Name: _____

ID: A



- A 33 The sides of a triangle measure 18 inches, 25 inches, and 36 inches. To the nearest degree, what is the measure of the largest angle?
- (a) 113° (c) 157°
(b) 147° (d) 159°
- Handwritten work:
 $36^2 = 18^2 + 25^2 - 2(18)(25)\cos A$
 $347 = -900\cos A$
 $\cos A = \frac{-347}{900}$

- C 34 $\triangle XYZ$ is reflected across the line $y = x$. If vertex Z is at $(-15, 21)$, where is Z' after the reflection?
- (a) $(15, 21)$ (c) $(21, -15)$
(b) $(15, -21)$ (d) $(-21, 15)$

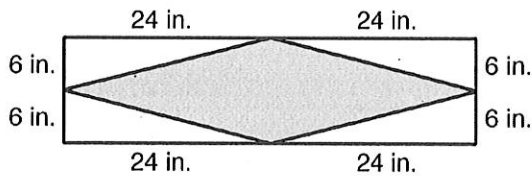
- A 35 \overline{MN} with endpoints $M(6, -10)$ and $N(1, 0)$ is rotated 30° about the origin. What are the coordinates of N' after the rotation?
- (a) $\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$ (c) $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$
(b) $\left(1, \frac{\sqrt{3}}{3}\right)$ (d) $\left(\frac{\sqrt{3}}{3}, 1\right)$
- Handwritten diagrams show the rotation of point $N(1, 0)$ to $N'(\frac{\sqrt{3}}{2}, \frac{1}{2})$ and point $M(6, -10)$ to $M'(\frac{1}{2}, \frac{\sqrt{3}}{2})$.

- A 36 To the nearest tenth, what is the area of a regular octagon with a perimeter of 32 meters?
- (a) 77.3 m^2 (c) 180.0 m^2
(b) 154.5 m^2 (d) 1024 m^2
- Handwritten work:
 $A = \frac{1}{2} (4.83)(32)$
 $\frac{32}{8} = 4$
 $\frac{32}{8} = 4$
 $\tan 22.5 = \frac{2}{a}$
 $a = \frac{2}{\tan 22.5}$
 $a = 4.83$

- C 37 The area of a trapezoid is 128 square feet. If the height of the trapezoid is increased by a factor of 5, what is the area of the new trapezoid?
- (a) 133 ft^2 (c) 640 ft^2
(b) 138 ft^2 (d) 3200 ft^2
- Handwritten work:
 $128 \times 5 =$

B

- 38) A rectangular scarf with the design shown is set out to dry. A fly lands on the scarf. What is the probability that it lands in the shaded region?



$$\begin{aligned} \text{Area of Rectangle} &= 48(12) = 576 \\ \text{Area of Rhombus} &= \frac{1}{2}(48)(12) = 288 \\ \frac{288}{576} &= \end{aligned}$$

- (a) 0.25 (c) 0.75
(b) 0.50 (d) 0.80

B

- 39) The air conditioner cycles on once every 28 minutes and stays on for 7 minutes. Find the probability that the air conditioner will be on when you walk in the door.

- (a) $P = 0.2$ (c) $P = 4$
(b) $P = 0.25$ (d) $P = 5$

$$\frac{7}{28} = \frac{1}{4} = 25\%$$

B

- 40) What is the volume of a rectangular prism that is 4 inches wide, 9 inches long, and 3 inches high?

- (a) 36 cm^2 (c) 324 cm^2 $V = 4(9)(3)$
(b) 108 cm^2 (d) 432 cm^2

A

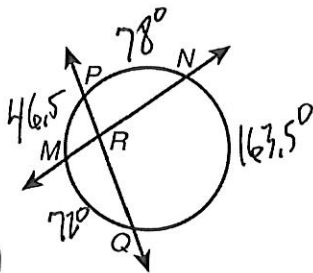
- 41) To the nearest tenth, what is the volume of a cylinder with a diameter of 22 centimeters and a height of 13 centimeters?

- (a) 4941.7 cm^3 (c) 6589.0 cm^3
(b) 5321.9 cm^3 (d) $19,766.9 \text{ cm}^3$

$$\begin{aligned} V &= \pi r^2 h \\ &\pi (11)^2 (13) \end{aligned}$$

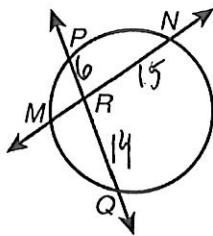
- B 42 What is the volume of a square pyramid with base area of 4 square meters and a height of 6 meters?
- (a) 6 m^3 (c) 12 m^3 $V = \frac{1}{3} B h$
 (b) 8 m^3 (d) 24 m^3 $\frac{1}{3}(4)(6)$

- C 43 To the nearest tenth, what is the area of a sector of a circle of radius of 9 meters if the central angle is 50° ?
- (a) 1.3 m^2 (c) 35.3 m^2 $A = \frac{50}{360} \cdot \pi 9^2$
 (b) 5.1 m^2 (d) 70.7 m^2



- D 44 $m\widehat{PN} = 78^\circ$, $m\widehat{QN} = 163.5^\circ$, and $m\widehat{MQ} = 72^\circ$. What is $m\angle PRM$?
- (a) 47° (c) 94°
 (b) 57° (d) 105°

$$m\angle PRM = \frac{46.5 + 163.5}{2}$$



$PR = 6$, $NR = 15$, and $QR = 14$. To the nearest tenth, what is MR ?

- (a) 5.6 (c) 6.4
(b) 6.0 (d) 7.0

46 The equation for a circle is $(x-4)^2 + (y+3)^2 = 25$. Which pair of coordinates locates its center?

- (a) $(4, -3)$ (c) $(16, -9)$
(b) $(-4, 3)$ (d) $(-16, 9)$